



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,990	02/09/2005	Masakazu Hayaishi	100193-00001	2843
4372	7590	05/24/2007		
ARENT FOX PLLC 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			EXAMINER YANG, JIE	
			ART UNIT	PAPER NUMBER
			1709	
			MAIL DATE	DELIVERY MODE
			05/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/523,990

Applicant(s)

HAYAISHI ET AL.

Examiner

Jie Yang

Art Unit

1709

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS; WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Acknowledge of the receipt of "applicant argument/remarks" filed on 02/09/2005.

Original claims 3-5 are amended from original claims, and Claims 1-5 are pending in application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 rejected under 35 U.S.C. 103(a) as being obvious over Takashi et al (U.S 6,783,728 B2, thereafter '728).

3. '728 discloses steel superior in machinability with constituents whose wt% ranges overlap those recited by the claims (refer to abstract and claims 1-10 of '728). These overlap encompasses most of range of claimed alloy. Pb and Bi are optional elements.

4. In regarding to claims 1 and 2 of present invention, because the composition of alloy of '728 have overlap with the composition of alloy in present application, it would be inherent the MnS inclusions' kind, number and distributions. More specifically note '728 teaches the steel characterized in

Art Unit: 1709

that the area in microscopic field occupied by the sulfide inclusions containing Ca of 1.0% or more neighboring to oxide inclusions containing CaO of 8-62% is 2.0×10^{-4} mm² or more per 3.5 mm². Even though prior art discussed the morphologies of MnS inclusions in different way (Particle size, area over aspect ratio, and film of sulfide inclusions being formed on the tool surface during turning), the inclusions distribution as claimed in instant application would be expected since compositional limitations are met and in absence of proof the contrary. Refer to MPEP 2144.05 about the "Obviousness of ranges [R-5]" and also refer to MPEP 2131.05. Such overlap renders applicant's composition prima facie obvious because it would have been obvious to one of ordinary skill in the art to select the claimed alloy ranges from the broader disclosure of the prior art since the prior art has same utility and properties (free-cutting, non-leaded, and excellent machinability, particularly, machinability by cutting with cemented carbide tools).

5. In regard to dependent 3, '728 teaches: one or more of Se: up to 0.4%, Te: up to 0.2% can be added into alloy to improve machinability (Cl.5, Col. 4, Line 44-48, and Col.5, Line 50-67).

6. In regard to dependent 4, '728 teaches one or more of Cr, Mo, B, and Ni with same composition range as instant claim 4 can be added to alloy to obtain good combination of enhanced

Art Unit: 1709

hardenability, machinability, and hot workability properties for cutting-free steel (Cl. 7, and Col.3, Line 53 to Col.4, Line 6).

7. In regard to dependent 5, '728 teaches one or more of Nb and V with same composition range as instant claim 5 can be added to alloy for preventing coarsening of crystal grains of the steel at high temperature (Cl. 8, and Col. 4, Line 7-22).

8. Claims 1-5 rejected under 35 U.S.C. 103(a) as being obvious over Hayaishi et al (U.S. 6,764,645, Thereafter '645).

9. In regard to claims 1, 2, '645 teaches a steel for machine structural use having good machinability and chip-breakability, which with a alloy composition overlaps the range of claimed alloy composition and similar feature and distribution of sulfide and oxide inclusions (refer to claim 1 of '645).

Compared '645's claim 1 with claim 1 and 2 of instant invention, there are no patentably distinct from each other. Overlapped composition and Similar feature and distribution of sulfide and oxide inclusions between '645 and instant invention render prima facie obvious because it would have been obvious to one of ordinary skill in the art to select the claimed alloy ranges from disclosure of the prior art since the prior art has same utility and properties (free-cutting, non-leaded, excellent chip-breakability).

Art Unit: 1709

10. In regard to claim 3, '645 teaches: one or more of Se: up to 0.4%, Te: up to 0.2% can be added into alloy to improve machinability (Claim 7 of '645 and Col. 7 Line 18 to 23).

11. In regard claim 4, '645 teaches: one or more of Cr: up to 3.5%, Mo: up to 2.0%, Cu: up to 2.0%, Ni: up to 4.0% and B: 0.0005-0.01% can be added into alloy to get good combination of hardenability, hot workability, and machinability (Claim 5 of '645 and Col. 5 Line 35 to 60).

12. In regard to claim 5, '645 teaches: one or both of Nb: up to 0.2%, and V: up to 0.5% can be added into alloy to make the crystal grains of the steel fine (Claim 6 of '645 and Col. 7

. Line 1 to 9).

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

Art Unit: 1709

be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1, 2 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,764,645 (Hereinafter '645).

Although the conflicting claims are not identical, they are not patentably distinct from each other because '645 teaches a steel for machine structural use having good machinability and chip-breakability, which with a alloy composition overlaps the range of claimed alloy composition. Similar feature and distribution of sulfide and oxide inclusions (refer to claim 1 of '645) between '645 and instant invention render prima facie obvious because it would have been obvious to one of ordinary skill in the art to select the claimed alloy ranges from disclosure of the prior art since the prior art has same utility and properties (free-cutting, non-leaded, excellent chip-breakability).

15. Claim 3 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,7 of '645. Although the conflicting claims are not identical, they are not patentably distinct from each other

Art Unit: 1709

because '645 teaches: one or more of Se: up to 0.4%, Te: up to 0.2% can be added into alloy to improve machinability (Claim 7 of '645 and Col. 7 Line 18 to 23).

16. Claim 4 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,5 of '645. Although the conflicting claims are not identical, they are not patentably distinct from each other because '645 teaches: one or more of Cr: up to 3.5%, Mo: up to 2.0%, Cu: up to 2.0%, Ni: up to 4.0% and B: 0.0005-0.01% can be added into alloy to get good combination of hardenability, hot workability, and machinability (Claim 5 of '645 and Col. 5 Line 35 to 60).

17. Claim 5 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1,6 of '645. Although the conflicting claims are not identical, they are not patentably distinct from each other because '645 teaches: one or both of Nb: up to 0.2%, and V: up to 0.5% can be added into alloy to make the crystal grains of the steel fine (Claim 6 of '645 and Col. 7 Line 1 to 9).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure US 6,773,661, which indicated the similar composition of leaded

Art Unit: 1709

free low carbon free-cutting steel and JP11-350065 (have English translation), which indicated similar composition of low carbon free-cutting steel with Ca-containing sulfide inclusions analysis.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-270-1884.

The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY

(JY)


MICHAEL B. CLEVELAND
SUPERVISORY PATENT EXAMINER